Modbus Register
TU5300 sc

V1.36

HACH®

Be Right™

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Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
TURBIDITY FNU / FTU / NTU / TEF	40001	Float	2	R		0.0 /1000.0	Turbidity [FNU]
TURBIDITY EBC	40005	Float	2	R		0.0 /250.0	Turbidity [EBC]
FLOW RATE	40009	Float	2	R		0.0 /5.0	Flowrate [l/min]
TURBIDITY MIN	40012	Float	2	R		0.0 /1000.0	minimum measurement range [NTU]
TURBIDITY MAX	40014	Float	2	R		0.0 /1000.0	maximum measurement range depends on calibration type [NTU]
EDITED NAME	40021	String	8	R/W			location of sensor
RESPONSE TIME	40029	Unsigned Integer	1	R/W		Mai 90	setting measurment rersponse time
MEAS UNIT	40030	Unsigned Integer	1	R/W		Jul 42	set unit of measurement for controller screen [6=FNU / 7=NTU / 8=TEF / 9=EBC / 42=FTU]
SET RESOLUTION	40031	Unsigned Integer	1	R/W		0 /1	display resolution selection (normal = 0 / high = 1)
BUBBLE REJECT	40032	Unsigned Integer	1	R/W		0 /1	set bubble rejection On /Off [OFF = 0 / On = 1]
LOGGER INTERVAL	40033	Unsigned Integer	1	R/W		0 /7	set logger interval [0=5s / 1=30s / 2=1min / 3=2min / 4= 5min / 5=10min / 6=15min / 7=30min
BUTTON FUNCTION	40034	Unsigned Integer	1	R/W		0 /4	set function for device button [0=SERVICE / 1=LINK2SC / 2=START WIPE / 3=WIPER REPLACE / 4=BUTTON OFF]
FLOW SENSOR	40037	Unsigned Integer	1	R/W		0 /1	flow unit installed On / Off [OFF = 0 / On = 1]
CLEANING UNIT	40038	Unsigned Integer	1	R/W		0 /1	cleaning unit installed On / Off [OFF = 0 / On = 1]
CHECK INTERVAL	40039	Unsigned Integer	1	R/W		0 /6	interval autoverification of cuvette [0=]OFF / 1=1h / 2=2h / 3=3h /4=6h / 5=12h / 6=24h]
SENSITIVITY	40040	Unsigned Integer	1	R/W		0 /1	sets level of identification of vial clarity error [0=HIGH / 1=LOW]
CLEANING INTERVAL	40041	Unsigned Integer	1	R/W		0 /4	set cleaning interval [0=2h / 1=6h / 2=12h / 3=24h / 4=7days / 9=trigger immerdiate]
CLEANING REMINDER	40042	Unsigned Integer	1	R/W		0 /1	reminder for changing wiper On / Off [OFF = 0 / On = 1]
CLEANING LEVEL	40043	Unsigned Integer	1	R/W		0 /1	Measurment level for cleaning On / Off [OFF = 0 / On = 1]
THRESHOLD FNU / FTU /NTU /TEF	40044	Float	2	R/W		0.0 /1000.0	Measurement threshold for cleaning
OUTPUT DELAY	40051	Unsigned Integer	1	R/W		0 /120	measurement delay after cleaning cycle
ACM SOFT VERSION	40052	Unsigned Integer	1	R		0 /65535	software version og cleaning unit
CALIBRATION CURVE	40053	Unsigned Integer	1	R/W		0 /2	type of calibration [0=STABLCAL / 1=FORMAZIN / 2=CUSTOM]
CALIBRATION RANGE	40054	Unsigned Integer	1	R/W		0 /1	calibration STABLCAL or FORMAZIN [0=1POINT / 1=2POINTS]
COUNT OF CALIBRATION POINTS	40055	Unsigned Integer	1	R/W		0 /6	calibration CUSTOM: count of user points
VERIFY AFTER CAL	40056	Unsigned Integer	1	R/W		0 /1	set verify after cal On /Off [OFF = 0 / On = 1]
CALIBRATION MENU GUIDED	40057	Unsigned Integer	1	R/W		0 /2	set menu guide calibration On / Off [0=OFF / 1=SEALED VIAL / 2=SYRINGE]
SET OUTMODE CALIBRATION	40058	Unsigned Integer	1	R/W		0 /2	otuput mode during calibration [0=HOLD / 1=ACTIVE / 2=SET TRANSFER]
CALIBRATION REMINDER	40059	Unsigned Integer	1	R/W		0 /4	Reminder interval to calibrate [0=OFF / 1=1day / 2=7days / 3=30days / 4=90 days]
VERIFICATION MENU GUIDED	40095	Unsigned Integer	1	R/W		0 /2	setting of type of guide to verificate [0=OFF / 1=SEALED VIAL / 2=SYRINGE]

Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
SET OUTMODE VERIFICATION	40096	Unsigned Integer	1	R/W		0 /2	output mode while verification is active [0=HOLD / 1=ACTIVE / 2=SET TRANSFER]
VERIFICATION INTERVALL	40097	Unsigned Integer	1	R/W		0 /4	reminder interval for verification [0=OFF / 1=1day / 2=7days / 3=30days / 4=90 days]
VERIFICATION STANDARD	40098	Float	2	R/W		0.0 /1000.0	value of verification standard
ACCEPT RANGE NTU	40100	Float	2	R/W		0.015 /500	allowed range for passed verifications in NTU
ACCEPT RANGE %	40102	Unsigned Integer	1	R/W		0 /50	allowed range for passed verifications in %
ACCEPT RANGE UNIT	40103	Unsigned Integer	1	R/W		07. Okt	Unit of verification NTU or % [7=NTU / 10=%]
SET OUTMODE MNT/TEST	40115	Unsigned Integer	1	R/W		0 /2	otuput mode during service [0=HOLD / 1=ACTIVE / 2=SET TRANSFER]
SERIAL NUMBER	40116	String	6	R			Serialnumber of device
PROGRAM	40122	Float	2	R		0.0 /999.99	Version of application code
BOOTPROGRAM	40124	Float	2	R		0.0 /999.99	Version of bootcode
STRUCTURE	40126	String	3	R/W			version of device driver structure
PROGRAM AU	40131	Unsigned Integer	1	R		0 /65535	Version of application code Analytical Unit
SERIAL NUMBER AU	40132	Unsigned Integer	2	R		0 /9999999	Serialnumber of Analytical Unit
SER NO PCB AU	40134	Unsigned Integer	2	R		0 /9999999	Serialnumber of mainboard of Analytical Unit
SER NO LASER	40136	Unsigned Integer	2	R		0 /9999999	Serialnumber of Laser
VIAL STATE	40140	Unsigned Integer	1	R		0 /2	autoverification result of VIAL (state) [0=OK / 1=ALERT / 2=ERROR]
VIAL CONDENSATION	40141	Integer	1	R		0 /100	autoverification result of VIAL condensation
VIAL CONDITION	40142	Integer	1	R		0 /100	autoverification result of VIAL condition
TOTAL TIME SENSOR	40177	Unsigned Integer	1	R		0 /65535	time of sensor in use in days
WIPER REPLACE	40178	Unsigned Integer	1	R		0 /65535	Down counter of available wiper cycles
VIAL DATE	40179	Time2	2	R		0 /4294967295	date of installed VIAL
VIAL CLEANING DATE	40181	Time2	2	R		0 /4294967295	date of last manual cleaning of VIAL
CALIBRATION	40183	Time2	2	R		0 /4294967295	date of latest calibration
VERIFICATION	40185	Time2	2	R		0 /4294967295	date of latest verification
FACTORY SERVICE	40187	Time2	2	R		0 /4294967295	Date of lastest factory service
DESICCANT TIME	40189	Unsigned Integer	1	R		0 /65535	days since latest desiccant install
LOAD	40190	Unsigned Integer	1	R		0 /65535	status of desiccant
PUMP TIME	40191	Unsigned Integer	2	R		0 /999999	used pump time
VIAL PRESENT	40193	Unsigned Integer	1	R		0 /1	VIAL detected [YES = 1 /NO = 0]
LID TYPE	40194	Unsigned Integer	1	R		0 /2	type of istalled Lid [0=NONE / 1=MEASURE / 2=CALIBRATE]
MEAS RAW	40195	Float	2	R		-200.0 /5000	signal of measurement channel
REF RAW	40197	Float	2	R		-200.0 /5000	signal of reference channel
HEATER	40199	Float	2	R		0.0 /100.0	Temperature Laser system
RATIO P/L	40209	Unsigned Integer	1	R		0 /100	Pump ratio
HUMIDITY	40210	Float	2	R		0 /100	humidity condens system
TEMP CONDENS	40212	Float	2	R		0.0 /100.0	temperature condens system

Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
SET POINT	40214	Unsigned Integer	1	R		0 /100	threshold condesation system
RATIO P/L WEEK	40219	Unsigned Integer	1	R		0 /100	Pump ratio (week)

Classified ERROR - Register 49930

Register (R/O)	Classified Error # Bit	Error	Description
49930	0	Measurement Calibration Error	not supported
49930	1	Electronic Adjustment Error	not supported
49930	2	Cleaning Error	The last cleaning cycle failed.
49930	3	Measuring Module Error	One or more of the errors TURB TOO HIGH, MEAS ELECTRONIC, PROC HEAD OPEN, VIAL CLARITY or VIAL PRESENT is active.
49930	4	System Re-initialization Error	not supported
49930	5	Hardware Error	One or more of the errors FLASH FAIL, EE RSRVD ERR, LASER TOO LOW, AUTOCHK. NO FUNC is active.
49930	6	Internal Communication Error	One or more of the error/warning AU COMM or RFID is active.
49930	7	Humidity Error	Humidity in the drying cycle exceeds limit.
49930	8	Temperature Error	Temperature in the drying cycle exceeds limit.
49930	9	Reserved for Future Use	
49930	10	Sample Warning	not supported
49930	11	Questionable Calibration Warning	not supported
49930	12	Questionable Measurement Warning	One or more of the measurements of the device are of questionable accuracy (Quality bad or out of range).
49930	13	Safety Warning	not supported
49930	14	Reagent Warning	not supported
49930	15	Maintenance Required Warning	One or more of the reminder is active. DRYER RANGE, PERFORM CAL, PERFORM VER, WIPER REPLACE

Classified STATUS - Register 49931

Register (R/O)	Classified Status #Bit	Status	Description
49931	0	Calibration in progress	The device has been placed in a calibration mode. The measurements may not be valid.
49931	1	Cleaning in progress	The device has been placed in a cleaning mode. The measurements may not be valid.
49931	2	Service/Maintenance menu	The device has been placed in a service or maintenance mode in which the measurements may not be valid.
49931	3	Common Error	Device recognizes an error, see Error Registers for Error Class.
49931	4	Measurement 0 Quality Bad	One or more of the errors.
49931	5	Measurement 0 Low Limit	not supported
49931	6	Measurement 0 High Limit	Measurement is above measurement range
49931			Warning or Error: TURB TOO HIGH
49931	7	Measurement 1 Quality Bad	Precision of measurement is out of specified limits.
49931			Flow is set to ON and error CLEANING MODULE is active
49931	8	Measurement 1 Low Limit	Measurement is below measurement range.
49931			Warning LOW FLOW or Error NO FLOW
49931	9	Measurement 1 High Limit	Measurement is above measurement range.
49931			Warning HIGH FLOW
49931	10	Measurement 2 Quality Bad	not supported
49931	11	Measurement 2 Low Limit	not supported
49931	12	Measurement 2 High Limit	not supported
49931	13	Measurement 3 Quality Bad	not supported
49931	14	Measurement 3 Low Limit	not supported
49931	15	Measurement 3 High Limit	not supported

ERROR List Information – Register 49985 - 86

Register (R/O)	Error #Bit	Error Description	Comment
49985	0	EE RSRVD ERR	
49985	1	AU COMM	
49985	2	FLASH FAIL	
49985	3	MEAS ELECTRONIC	
49985	4	PROC HEAD OPEN	
49985	5	CLEANING MODULE	
49985	6	VIAL CLARITY	
49985	7	TURB TOO HIGH	
49985	8	VIAL PRESENT	
49985	9	TYPE MISMATCH	
49985	10	LASER TOO LOW	
49985	11	HUMIDITY PCB	
49985	12	AUTOCHK. NO FUNC	
49985	13	Water Ingress	
49985	14	CAL. CURVE	
49985	15	NOT USED	
49986	0	NOT USED	
49986	1	NOT USED	
49986	2	NOT USED	
49986	3	NOT USED	
49986	4	NOT USED	
49986	5	NOT USED	
49986	6	NOT USED	
49986	7	NOT USED	
49986	8	NOT USED	
49986	9	NOT USED	
49986	10	NOT USED	
49986	11	NOT USED	
49986	12	NOT USED	
49986	13	NOT USED	
49986	14	NOT USED	
49986	15	NOT USED	

WARNING List Information – Register 49983 - 84

Register (R/O)	Warning # Bit	Warning Description	Comment
49983	0	HUM PCB SC	
49983	1	VIAL CLARITY	
49983	2	TURB TOO HIGH	
49983	3	CLEANING MODULE	
49983	4	NO FLOW	
49983	5	LOW FLOW	
49983	6	HIGH FLOW	
49983	7	WIPER REPLACE.	
49983	8	DRYER EXHAUS'D	
49983	9	SENS.DRY: FUNC	
49983	10	DRYER	
49983	11	PUMP	
49983	12	SENS.DRY: TEMP	
49983	13	SENS.DRY: HUM	
49983	14	NOT DRYING	
49983	15	DESICCANT OLD	
49984	16	LASER-TEMP HIGH	
49984	17	LASER-TEMP SENS.	
49984	18	RFID	
49984	3	NOT USED	
49984	4	NOT USED	
49984	5	NOT USED	
49984	6	NOT USED	
49984	7	NOT USED	
49984	8	NOT USED	
49984	9	NOT USED	
49984	10	NOT USED	
49984	11	NOT USED	
49984	12	NOT USED	
49984	13	NOT USED	
49984	14	NOT USED	
49984	15	NOT USED	

Process Event List Information – Register 49987 - 88

Register	Process Event #Bit	Process Event Description	Comment
49987	0	CALIBRATION	
49987	1	VERIFICATION	
49987	2	CALIBRATION *	* RFID
49987	3	VERIFICATION *	* RFID
49987	4	CLEANING	
49987	5	SERVICE	
49987	6	WIPER REPLACE.	
49987	7	VIAL REPLACEMENT	
49987	8	VIAL CLEANING	
49987	9	DESICCANT REPL	
49987	10	NOT USED	
49987	11	NOT USED	
49987	12	NOT USED	
49987	13	NOT USED	
49987	14	NOT USED	
49987	15	NOT USED	
49988	0	NOT USED	
49988	1	NOT USED	
49988	2	NOT USED	
49988	3	NOT USED	
49988	4	NOT USED	
49988	5	NOT USED	
49988	6	NOT USED	
49988	7	NOT USED	
49988	8	NOT USED	
49988	9	NOT USED	
49988	10	NOT USED	
49988	11	NOT USED	
49988	12	NOT USED	
49988	13	NOT USED	
49988	14	Prohibited, internal use only	
49988	15	Prohibited, internal use only	

Reminder List Information – Register

Register (R/O)	Reminder #Bit	Process Event Description	Comment
49919	0	PERFORM CAL	
49919	1	PERFORM VER	
49919	2	WIPER REPLACE.	
49919	3	DRYER RANGE	
49919	4	SENSOR SETUP	
49919	5	NOT USED	
49919	6	NOT USED	
49919	7	NOT USED	
49919	8	NOT USED	
49919	9	NOT USED	
49919	10	NOT USED	
49919	11	NOT USED	
49919	12	NOT USED	
49919	13	NOT USED	
49919	14	NOT USED	
49919	15	NOT USED	
49920	0	NOT USED	
49920	1	NOT USED	
49920	2	NOT USED	
49920	3	NOT USED	
49920	4	NOT USED	
49920	5	NOT USED	
49920	6	NOT USED	
49920	7	NOT USED	
49920	8	NOT USED	
49920	9	NOT USED	
49920	10	NOT USED	
49920	11	NOT USED	
49920	12	NOT USED	
49920	13	NOT USED	
49920	14	NOT USED	
49920	15	NOT USED	